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NOTICE OF ALLOWANCE AND FEE(S) DUE

29737 7590 02/22/2010

SMITH MOORE LEATHERWOOD LLP
P.O. BOX 21927
GREENSBORO, NC 27420

EXAMINER

CHOI, LING SIU

ART UNIT

PAPER NUMBER

1796

DATE MAILED: 02/22/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,577	07/14/2006	Markus Frank	5003073.069US1	2108

TITLE OF INVENTION: PROCESS FOR AGGLOMERATION OF SUPERABSORBENT POLYMER FINE PARTICLES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/24/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

29737 7590 02/22/2010

SMITH MOORE LEATHERWOOD LLP
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GREENSBORO, NC 27420

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,577	07/14/2006	Markus Frank	5003073.069US1	2108

TITLE OF INVENTION: PROCESS FOR AGGLOMERATION OF SUPERABSORBENT POLYMER FINE PARTICLES

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/24/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHOI, LING SIU	1796	330-003000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/565,577	07/14/2006	Markus Frank	5003073.069US1	2108
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			ART UNIT	PAPER NUMBER
			1796	
DATE MAILED: 02/22/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 752 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 752 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/565,577	FRANK, MARKUS	
	Examiner	Art Unit	
	Ling-Siu Choi	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/30/2009.
2. ☒ The allowed claim(s) is/are 1-17 and 19.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>11/11/2009</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

/Ling-Siu Choi/
Primary Examiner, Art Unit 1796

DETAILED ACTION

1. This Office Action is in response to the Amendment filed 12/30/2009. Claims 18 and 20 were cancelled and claims 1-17 and 19 are now pending.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

3. The application has been amended as follows:

Claim 11, line 7, change "the crosslinked polymer, on ethylenic acid group-bearing monomers" to --the crosslinked polymer, ethylenic acid group-bearing monomers--.

Allowable Subject Matter

4. Claims 1-17 and 19 are allowed.
5. The following is an examiner's statement of reasons for allowance:

Art Unit: 1796

The present claims are allowable over the closest references: Azad et al. (US 2005/0013992 A1), Woodrum et al. (US 5,350,799), and Klimmek et al. (US 5,610,220).

Summary of Claim 1:

A process for producing an agglomerated superabsorbent polymer particle comprising <u>more than about 75 wt% superabsorbent polymer fine particles</u> , said process steps consist of :	
A	bringing (i) superabsorbent polymer fine particles having <u>at least about 40 wt%, based on the total weight of the superabsorbent polymer fine particles, a particle size of less than about 150 μm</u> into contact with (ii) a fluid comprising to more than about 10 wt.%, based on the total weight of the fluid, a cross-linkable, uncrosslinked polymer, which polymer is based on polymerized, ethylenically unsaturated, acid groups-bearing monomers or salts thereof to at least about 20 wt.%, based on the total weight of the cross-linkable, uncrosslinked polymer; and
B	cross-linking the uncrosslinked polymer by heating the superabsorbent polymer fine particles brought into contact with the fluid to a temperature within a range from about 20 to about 300 °C, so that the cross-linkable, uncrosslinked polymer at least partially crosslinks,
wherein (a) the cross-linkable, uncrosslinked polymer comprises, besides the polymerized, ethylenically unsaturated, acid groups-bearing monomers, further polymerized, ethylenically unsaturated monomers (M) capable of reacting with polymerized acid group-bearing monomers in a condensation reaction, in an addition reaction or in a ring opening reaction, and/or	

Art Unit: 1796

(b) the fluid comprises, beside the cross-linkable, uncrosslinked polymer, a crosslinker, and

(c) wherein the agglomerated superabsorbent polymer particle has less than about 10 wt.%, based on the total weight of the agglomerated superabsorbent polymer particle, a particle size of less than about 150 μm .

Summary of claim 10:

An agglomerated superabsorbent polymer particle comprising more than about 75 wt.% superabsorbent polymer fine particles, wherein

- | | |
|----|--|
| A1 | the <u>superabsorbent polymer fine particles</u> comprise, <u>at least about 40 wt.%</u> based on the total weight of the superabsorbent polymer fine particles, a particle size of less than about 150 μm and about at least partially onto a matrix of a crosslinked polymer, |
| A2 | wherein the crosslinked polymer comprises <u>at least about 20 wt.%, based on the total weight of the crosslinked polymer, <u>polymerized acid group-bearing monomers or salts thereof</u></u> |
| A3 | the crosslinked polymer comprises a different chemical composition than the superabsorbent polymer fine particles or a different physical property than the superabsorbent polymer fine particles, and |
| A4 | wherein <u>less than about 10 wt.% of the superabsorbent polymer particle comprises a particle size of less than about 150 μm.</u> |

Summary of claim 11:

An **agglomerated superabsorbent polymer particle** comprising superabsorbent polymer fine particles having, at least about 50 wt.% based on the total weight of the superabsorbent polymer fine particles, an average particle size of less than about 150 μm and abutting a matrix of a

Art Unit: 1796

crosslinked polymer, wherein:	
B1	the crosslinked polymer <u>comprises at least about 20 wt.%, based on the total weight of the crosslinked polymer, ethylenic acid group-bearing monomers or salts thereof,</u>
B2	the crosslinked polymer comprises a different chemical composition than the superabsorbent polymer fine particles or a different physical property than the superabsorbent polymer fine particles and wherein
B3	the matrix comprises, besides the crosslinked polymer, an effect material comprising a <u>polysaccharide or a polyalkylether polyol or a silicon-oxygen-comprising compound or a mixture of at least two thereof.</u>

Azad et al. disclose a superabsorbent particles having a shell which comprises a cationic polymer crosslinked by the addition of a crosslinker and adhered to a hydrogel-forming polymer having a residual water content of less than 10 wt %, the particles being prepared by applying a coating solution, containing the cationic polymer and the crosslinker, to the hydrogel-forming polymer, wherein the hydrogel-forming polymer is neutralized at least 50 mole % and the cationic polymer comprises a polyamine or a polyimine material and wherein the superabsorbent particles has 80% of the particles smaller than 200 μm (claims 29 and 49). Azad et al. further disclose that “Other suitable polymers for grafting with N-vinylformamide are vinylacetate, **acrylic acid**, methacrylic acid, acrylamide and acrylonitrile. Other suitable polymers for grafting with N-vinylformamide are mono-, oligo- or polysaccharide-based polymers, which contains N-vinylformamide in contents from 20 to 95% by weight, related to the entire amount monomer+polymer. Said grafted

Art Unit: 1796

polymers are rendered afterwards in free amines by hydrolyzation, rendered in case to un-neutralized form followed by crosslinking" ([0153]-[0154]).

Woodrum et al. disclose a fine particulate superabsorbent particles being processed into larger particles by a process comprising (a) adding fine superabsorbent polymer particles having a particle size about 75 micron or less to a superabsorbent polymer solution polymerization reaction product gel and forming a dispersion of the particles in the gel; (b) adding water to the dispersion of the gel and the particles; (c) mixing the water and the dispersion to form a substantially uniform mixture of the particles in the reaction gel; and (d) drying the mixture, wherein the crosslinker is alkylene glycol diglycidyl ether (claims 1 and 7).

Klimmek et al. disclose a powdery polymer composition which is capable of absorbing aqueous or serous liquids and blood comprising (A) a cross-linked polymer formed of (a) 55-99.9%-wt. polymerized unsaturated, polymerizable acid-groups-comprising monomers which are neutralized to the extent of at least 25 mol-%, (b) 0-40%-wt. polymerized unsaturated monomers which are copolymerizable with (a), and (c) 0.1-5.0%-wt. of a cross-linking agent, and (B) (d) 0-30%-wt. of a water-soluble polymer, and (e) 0.05-0.3 parts by weight of a compound capable of reacting with at least two carboxyl groups and not comprising an alkali-salt-forming group in the molecule, and/or (f) 0.05-1 parts by weight of a compound capable of reacting with at least two carboxyl groups and comprising an alkali-salt-forming group in the molecule, and heated to 150-250°C, wherein the particle size is between 50-850 μm and the

Art Unit: 1796

water-soluble polymer includes polyacrylic acid, polyvinyl alcohol, polyvinyl pyrrolidone, starch, or polyglycol (col. 5, lines 15-27 and 28-39; claim 1).

Thus, **Azad et al., Woodrum et al., or Klimmek et al.** do not teach or fairly suggest the claimed agglomerated superabsorbent polymer particle, wherein the polymer particle comprises, in particular, more than about 75 wt.% superabsorbent polymer fine particles having at least about 40 wt.% a particle size of less than about 150 μm and being about at least partially onto a matrix of a crosslinked polymer which comprises at least about 20 wt.% polymerized acid group-bearing monomers or salts thereof, less than about 10 wt.% of the superabsorbent polymer particle having a particle size of less than about 150 μm or the claimed agglomerated superabsorbent polymer particle, wherein the polymer particle comprises, in particular, at least about 50 wt.% an average particle size of less than about 150 μm and abutting a matrix of a crosslinked polymer comprising at least about 20 wt.% ethylenic acid group-bearing monomers or salts thereof, wherein the matrix further comprises a polysaccharide or a polyalkylether polyol or a silicon-oxygen-comprising compound or a mixture of at least two thereof.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 1796

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

February 09, 2010

Application/Control Number: 10/565,577
Art Unit: 1796

Page 9